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1270 Aberdeen St
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K6A 1K7
Canada

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D212-664-201TRN
Job Sheet 199407



Part No: D212-664-201TRN

Job Qty: 1 pcs

Part Name: Crosstube Turning Detail



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 8/22/19

Job Tracking No:

Due Date: 9/4/19

Created By: Marie Lajeunesse

Type: Stock

Description:

Note: D212-664-241 REV E IPP Rev:A 08-03-06 new issue DD verified by:ec IPP Rev B 08.04.02 Removed polish EC verified DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
100	Mori Seiki TL-40 - 1	1 pcs		9/4/19	1.00	1.33	Mori Seiki TL-40 - 1		DAS 662019/09/13 9-89
110	QC 2	1 pcs		9/4/19	0.00	0.00	QC 2 - 1		
							QC 2 - 12		
							QC 2 - 14		
							QC 2 - 17		
							QC 2 - 19		
							QC 2 - 2		
							QC 2 - 20		
							QC 2 - 22		
							QC 2 - 23		
							QC 2 - 25		
							QC 2 - 32		
							QC 2 - 33		
							QC 2 - 35		
							QC 2 - 39		
							QC 2 - 4		
							QC 2 - 40		
							QC 2 - 44		
							QC 2 - 45		
							QC 2 - 48		
							QC 2 - 49		
							QC 2 - 50		
							QC 2 - 51		
							QC 2 - 52		
							QC 2 - 57		
							QC 2 - 62		
							QC 2 - 63		
							QC 2 - 8		DAS 662019/09/13 9-89
							QC 2 - 66		
							QC 2 - 64		

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					QC 2 - 65	
					QC 2 - 5	
					QC 2 - 71	
					QC 2 - 73	
					QC 2 - 69	
120	Mori Seiki TL-40 - 1 - B4B	1 pcs	9/4/19	1.00 1.33	Mori Seiki TL-40 - 1 - B4B	DAS 662019/09/16 9-89
130	QC 2	1 pcs	9/4/19	0.00 0.00	QC 2 - 1	
					QC 2 - 12	
					QC 2 - 14	
					QC 2 - 17	
					QC 2 - 19	
					QC 2 - 2	
					QC 2 - 20	
					QC 2 - 22	
					QC 2 - 23	
					QC 2 - 25	
					QC 2 - 32	
					QC 2 - 33	
					QC 2 - 35	
					QC 2 - 39	
					QC 2 - 4	
					QC 2 - 40	
					QC 2 - 44	
					QC 2 - 45	
					QC 2 - 48	
					QC 2 - 49	
					QC 2 - 50	
					QC 2 - 51	
					QC 2 - 52	
					QC 2 - 57	
					QC 2 - 62	
					QC 2 - 63	
					QC 2 - 8	
					QC 2 - 66	DAS 662019/09/16 9-89
					QC 2 - 64	
					QC 2 - 65	
					QC 2 - 5	
					QC 2 - 71	
					QC 2 - 73	
					QC 2 - 69	
140	QC 8	1 pcs	9/4/19	0.00 0.00	QC 8 - 12	
					QC 8 - 14	
					QC 8 - 17	
					QC 8 - 20	
					QC 8 - 25	
					QC 8 - 3	
					QC 8 - 32	
					QC 8 - 33	
					QC 8 - 35	
					QC 8 - 39	
					QC 8 - 4	
					QC 8 - 44	
					QC 8 - 45	
					QC 8 - 49	
					QC 8 - 58	
					QC 8 - 8	
					QC 8 - 9	
					QC 8 - 68	

					QC 8 - 67	DAS 76 9-89
					QC 8 - 1 (A)	
					QC 8 - 47	
					QC 8 - 40	
					QC 8 - 52	
					QC 8 - 23	
					QC 8 - 57	
145 Crosstubes - 2 - B4B	1 pcs	9/4/19	0.00 0.25	Crosstubes - 1 - B4B		
				Crosstubes - 2 - B4B	BB 10/1/20/9	
				Crosstubes - 3 - B4B		
				Crosstubes - 4 - B4B		
150 Handfinish - 1-1 Chemical-B4B	1 pcs	9/4/19	0.00 1.00	Handfinish - 1 - 1 - B4B		
				Handfinish - 1 - 2 - B4B		
				Handfinish - 1 - 3 - B4B	★ OCT 15 2019	
				Handfinish - 1 - 4 - B4B		
				Handfinish - 1 - 5 - B4B		
				Handfinish - 1 - 6 - B4B		
				Handfinish - 1 - 7 - B4B		
				Handfinish - 1 - 8 - B4B		
				Handfinish - 1 - 9 - B4B		
				Handfinish - 1 - 10 - B4B		
				Handfinish - 1 - 11 - B4B		
				Handfinish - 1 - 12 - B4B		
				Handfinish - 1 - 13 - B4B		
				Handfinish - 1 - 14 - B4B		
				Handfinish - 1 - 15 - B4B		
				Handfinish - 1 - 16 - B4B		
				Handfinish - 1 - 17 - B4B		
				Handfinish - 1 - 18 - B4B		
				Handfinish - 1 - 19 - B4B		
				Handfinish - 1 - 20 - B4B		
				Handfinish - 1 - 21 - B4B		
				Handfinish - 1 - 22 - B4B		
160 QC 7	1 pcs	9/4/19	0.00 0.00	QC 7 - 10		
				QC 7 - 13		
				QC 7 - 14		
				QC 7 - 15		
				QC 7 - 17		
				QC 7 - 18		
				QC 7 - 19		
				QC 7 - 2		
				QC 7 - 28		
				QC 7 - 3		
				QC 7 - 30		
				QC 7 - 34		
				QC 7 - 36		
				QC 7 - 37		
				QC 7 - 41		
				QC 7 - 47		
				QC 7 - 48		
				QC 7 - 51		
				QC 7 - 58		
				QC 7 - 59		
				QC 7 - 60	DAS 76 9-89	
				QC 7 - 9		
				QC 7 - 68		
				QC 7 - 50		
				QC 7 - 67	BB 20/9-11	
				QC 7 - 40		

170 Packaging 3-1 - Stock - B4B	1 pcs	9/4/19	0.00 0.00	QC 7 - 24	
				QC 7 - 43	
				QC 7 - 61	
				QC 7 - 81	
				Packaging 3 - 1 - B4B	
				Packaging 3 - 2 - B4B	
				Packaging 3 - 3 - B4B	
				Packaging 3 - 4 - B4B	
				Packaging 3 - 5 - B4B	
				Packaging 3 - 6 - B4B	
				Packaging 3 - 7 - B4B	
				Packaging 3 - 8 - B4B	
				Packaging 3 - 9 - B4B	
				Packaging 3 - 10 - B4B	
				Packaging 3 - 11 - B4B	
				Packaging 3 - 12 - B4B	
				Packaging 3 - 13 - B4B	
				Packaging 3 - 14 - B4B	
				Packaging 3 - 15 - B4B	
				Packaging 3 - 16 - B4B	
				Packaging 3 - 17 - B4B	
				Packaging 3 - 18 - B4B	
				Packaging 3 - 19 - B4B	
				Packaging 3 - 20 - B4B	
				Packaging 3 - 21 - B4B	
				Packaging 3 - 22 - B4B	
				Packaging 3 - 23 - B4B	
				Packaging 3 - 24 - B4B	DB 2019-11-1
				Packaging 3 - 25 - B4B	
				Packaging 3 - 26 - B4B	
				Packaging 3 - 27 - B4B	
				Packaging 3 - 28 - B4B	
				Packaging 3 - 29 - B4B	
				Packaging 3 - 30 - B4B	
				Packaging 3 - 31 - B4B	
				Packaging 3 - 32 - B4B	
				Packaging 3 - 33 - B4B	
				Packaging 3 - 34 - B4B	
				Packaging 3 - 35 - B4B	
				Packaging 3 - 36 - B4B	
180 QC 21 - SA	1 pcs	9/4/19	0.00 0.00	QC 21 - SA - 21	DB
				QC 21 - SA - 70	21
				QC 21 - SA - 53	DB

Part Op 100 - Mori Seiki TL-40 (Mori Seiki CNC Lathe Large) 1-Fill tube with sand & install plugs DT8534 on both ends as per
 Descriptions: Folio FA114 2-Turn first side as per Folio FA114
 110 - (QC2- Inspect parts off machine FAI/FAIB)
 120 - Mori Seiki TL-40 (Mori Seiki CNC Lathe Large) 1-Turn second side as per Folio FA114
 130 - (QC2- Inspect parts off machine FAI/FAIB)
 140 - (QC8- Inspect parts - second check)
 145 - (Crosstubes) GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY.
 150 - Crosstubes) 1- handfinish X-TUBE INSIDE AND OUT
 160 - (QC7-Inspect Chemical Conversion Coat)
 170 - (Identify as per dwg & Stock Location: _____) Identify and stock in kanban rack Location: _____
 180 - (QC21- Final Inspection - Work Order Release)

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D6006-129	Crosstube Material	1 pcs (1 ea)	100-Mori Seiki TL-40 - 1	F123967

Job Allocations				
Operation	Component Part	Required	Inventory	Allocated
100-Mori Seiki TL-40 - 1	D6006-129	1	45	0
Part Specifications				
Specifications could not be found.				

**Container No: S213680****Part: D212-664-201TRN****Job No: 199407****Serial No/Batch: S213680****Revision: E****Inspector:****Exp Date:****Instructions:**

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Date: 09/13/18

①

DART AEROSPACE LTD	Work Order:	199407
Description: Crosstube Assembly (205/212 High Aft)	Part Number:	D212-664-241
Inspection Dwg: D212-664-241 Rev: E		Page 1 of 2

FIRST ARTICLE INSPECTION CHECKLIST

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.200	+/-0.010	.195	✓		CNC-08	
	R0.063	+/-0.010	.063	✓		RG	
	2.990	+0.005/-0.000	2.995	✓		CNC-04	
	5.237	+/-0.030	5.227	✓		CNC-08	
	2.600	+0.005/-0.000	2.603	✓		CNC-04	
	2.686	+0.005/-0.000	2.691	✓			
	2.770	+0.005/-0.000	2.775	✓			
	2.854	+0.005/-0.000	2.859	✓			
	2.938	+0.005/-0.000	2.943	✓			
	3.021	+0.005/-0.000	3.026	✓		CNC-05	
	3.133	+0.005/-0.000	3.138	✓			
	3.179	+0.005/-0.000	3.184	✓			
SIDE B	0.200	+/-0.010	.198	✓		CNC-08	
	R0.063	+/-0.010	.063	✓		RG	
	2.990	+0.005/-0.000	2.995	✓		CNC-04	
	5.237	+/-0.030	5.233	✓		CNC-08	
	2.600	+0.005/-0.000	2.605	✓		CNC-04	
	2.686	+0.005/-0.000	2.691	✓			
	2.770	+0.005/-0.000	2.774	✓			
	2.854	+0.005/-0.000	2.859	✓			
	2.938	+0.005/-0.000	2.943	✓			
	3.021	+0.005/-0.000	3.026	✓		CNC-05	
	3.133	+0.005/-0.000	3.138	✓			
	3.179	+0.005/-0.000	3.184	✓			
	124.362	+/-0.020	124.36	✓		Tape	

Item	Qty	Part Number	Description
1	X	D212-864-241	CROSSTUBE ASSEMBLY (205/212 HIGH AFT)
2	X	D212-864-241B	CROSSTUBE ASSEMBLY (214 HIGH AFT)
3	1	D8008-129	CROSSTUBE
4	2	D2840-1	SUPPORT
5	4	D3595-083-530	RUBBER CUSHION
6	2	D8018-1	SUPPORT
7	4	MS21820-28	CLAMP (OR MS21820-30)
8	AR	PROSEAL 890 B-2	SEALANT, AMS-S-890Z CLASS B-2

GENERAL NOTES:

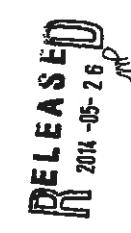
- 1) MATERIAL: MANUFACTURED FROM D6006-129
FINISHED LENGTH = 124.39250 020
- 2) FINISH: a) CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
b) PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
c) MASK UNDERSIDE OF CROSSTUBE AS SHOWN (ZN C8-2 / C8-3, HATCHED AREA)
d) PAINT OUTSIDE PER DART QSI 005 4.2
e) REMOVE MASKING AND APPLY MATTE CLEAR COAT
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-864-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: D212-864-241 / 241B = 44.2 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 10) RUN CUTTER OFF PART: BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 11) BEND PROGRESSIVELY WITH A MINIMUM OF 5 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 7.2% (BASED ON O.D.) IN LOWER HALF OF R35.5 BEND AND 6% (BASED ON O.D.) ON REMAINING TUBE.
- 12) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 13) ASSEMBLY
INSTALL D2840-1 / D5018-1 SUPPORT. ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-890Z CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
INSTALL MS21820-28 CLAMPS (OR -30) WITH D3595-083-530 RUBBER CUSHIONS TO SECURE THE SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE ON TOP SIDE OF CROSSTUBE.
TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER

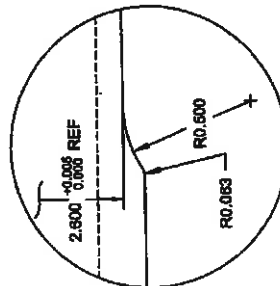
NO. 169407 M05
190822

RELEASED
2014-05-26
ND

E	D2018-1 WAS D2040-1 (241B). PROSEAL WAS MAGNABOND. NOTE 2: ADD INSPECTION WINDOW, NOTE 11: ALLOW 7.2% CRUSH. NOTE 15: ADD 72HR CURE AND RETORQUE FOR PROSEAL. ADD SHEET 3. CLAMPS REVERSED TO PREVENT CHAFING (ZN B7-2, B7-3). BEND HEIGHT TOL. NOW 0.25 WAS 0.13 (C1-4). INCOMP DED D-1/2	CP	14.04.01
D	REFORMAT/REVISE GENERAL NOTES/PART LIST: REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -241B (ZN D4-2, B4-2); REMOVED REF & ADD TOLERANCES (ZN D8-3 & C4-3, C8-3 & A8-3); RELOCATED FLAG #6 PER PAR 06-049 (ZN A8-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4	RF	06.08.30
C	REMOVE -1000 ABRASION STRIP; ADD MAGNABOND 8385, CUSHION, REVERSE CLAMPS	PH	07.03.08
B	ADD HOLES FOR COMPATIBILITY WITH BHTMA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	CP	00.12.12
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	14.04.01		
DART AEROSPACE LTD HARRISBURG, ONTARIO, CANADA			
DRAWING NO. D212-864-241			
TITLE CROSSTUBE ASSY (205/212 HI AFT)			
SHEET 1 OF 5			
SCALE NTS			
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SECTION G-G
SCALE 4X



RELEASED
2014-05-26

DESIGN	00	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. D212-684-241 TITLE CROSS-TUBE ASSY (205/212 HI AFT) SCALE NTS SHEET 5 OF 5 REV. E
DRAWN	00	
CHECKED	00	
MRG. APPL.		
APPROVED		
DATE	14.04.01	DE APPR. CROSS-TUBE ASSY (205/212 HI AFT) NTS DART AEROSPACE LTD Copyright © 2000, BY DART AEROSPACE LTD This drawing is property of DART AEROSPACE LTD. It is to be used for the specific purpose intended. No part of this drawing may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without prior written permission of DART AEROSPACE LTD.

DETAIL E:
TAPER RUN-OFF
NOT TO SCALE

DETAIL F:
CUFF TRANSITION
SCALE 10X



Entered: _____ Date: _____

WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

Route update only ☐

NCR No. _____

Job: _____

Part No. _____

DISPOSITION

Rework ☐ ☐ ☐
Scrap ☐ ☐ ☐
Use-as-is ☐ ☐ ☐

DEPARTMENT/PROCESS

Skid-tube ☐ ☐ ☐
Machining ☐ ☐ ☐
Large Fab ☐ ☐ ☐

Cross tube ☐ ☐ ☐
Small Fab ☐ ☐ ☐
Finishing ☐ ☐ ☐

Eng. (Non-AW) ☐ ☐ ☐
Prod. Eng. Coord. ☐ ☐ ☐
Rec/Store/Packaging ☐ ☐ ☐
Engineering ☐ ☐ ☐
Water Jet ☐ ☐ ☐
Supplier ☐ ☐ ☐
Quality ☐ ☐ ☐

Date : _____

Sequence #: _____

QTY Affected : _____

MRB (QS042)

Description Work Order Deviation

Disposition

Completed By _____

Lead hand / Supervisor _____

QC / QA Coordinator _____

Root Cause

Operator ☐ ☐ ☐ ☐
Manufacturing Process ☐ ☐ ☐ ☐
Equip/Tooling ☐ ☐ ☐ ☐
Handling/Preservation ☐ ☐ ☐ ☐
Material ☐ ☐ ☐ ☐
Product Improvement ☐ ☐ ☐ ☐
Process Improvement ☐ ☐ ☐ ☐
Human Factors ☐ ☐ ☐ ☐

FAULT CATEGORY

Pressure/Forced	Contamination	Power Loss/Surge	Positioned Wrong
☐	☐	☐	☐
Bending	Misaligned/off center	Folio/Program	Outside Tolerance
☐	☐	☐	☐
Crushing	BOM/Route	Grain Direction	Drawing
☐	☐	☐	☐
Cracks	Broken/Damage/Defect	Weld	Finish
☐	☐	☐	☐
Crimp/Kink/Ripple/Wave/Twist	Incomplete/Unclear Instructions	Wrong Stock Pulled	Part Lost/Missing
☐	☐	☐	☐
Marks/Chatter	Drill Holes	Out of Sequence	Misread
☐	☐	☐	☐
Mislabeled	Fit/Function	Off-set/Set-up	
☐	☐	☐	

Other/Details: _____